

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

RTD UPDATES: Irrigated Land in Farms

Data updates from the Resources and Technology Division

Economic Research Service
U.S. Department of Agriculture

December 1993
Number 2

Revised Estimates of Irrigated Area and Water Use in 1992-93

- Farmers irrigated 51.2 million acres of cropland and pasture in 1993, down more than one million acres from 1992. Wet weather in many States was a factor.
- Declines in irrigated area occurred primarily in the Lake States, Corn Belt, and Northern Plains. Irrigated cotton area increased while that for corn, wheat, and rice declined.
- Nationwide, average water use per irrigated acre is declining.

This issue of **RTD UPDATES** summarizes ERS estimates of annual agricultural irrigation. Estimates are based on annual USDA data that complement data collected every 5 years in the Census of Agriculture and data collected periodically in the Farm and Ranch Irrigation Survey (FRIS).

The highest figure for irrigated land in farms reported by the Census was 50.4 million acres in 1978. Irrigated area declined subsequently to 49 million acres in 1982 and to 46.4 million acres in the 1987 Census. Annual data show that these declines were not a trend. Considerable year-to-year variation occurs in irrigated area, with a major factor being annual acreage idled under USDA programs. Idled cropland in 1987 was near record levels. In recent years, cropland idled under annual programs has dropped to one-third of the 1987 level and irrigated area has expanded.

Irrigation development has moved north and east. The crop mix has also changed. Irrigation of corn, wheat, and

especially soybeans has grown much faster than irrigation of cotton, hay, and other crops. Declines in irrigation from 1992 to 1993 came primarily in the Lake States, Corn Belt, and Northern Plains in response to wet weather and in California where water use has not recovered from the recent drought. Nationally, irrigated area of corn, wheat, and rice declined in 1993, while irrigated cotton area increased.

The estimated depth of water applied per season now averages less than 22 inches, or 13 percent less than in 1969. This decline resulted from adoption of more efficient irrigation technologies and practices in the 70's and shifts in geographic location of irrigation and the crop mix being irrigated in each State. Water applied per acre has declined in most of the western States and has increased in eastern States. On corn, wheat, soybeans, and hay, average use has declined. Water use per acre of rice, which increased about 20% during the 1969-79 period, has also declined in recent years.

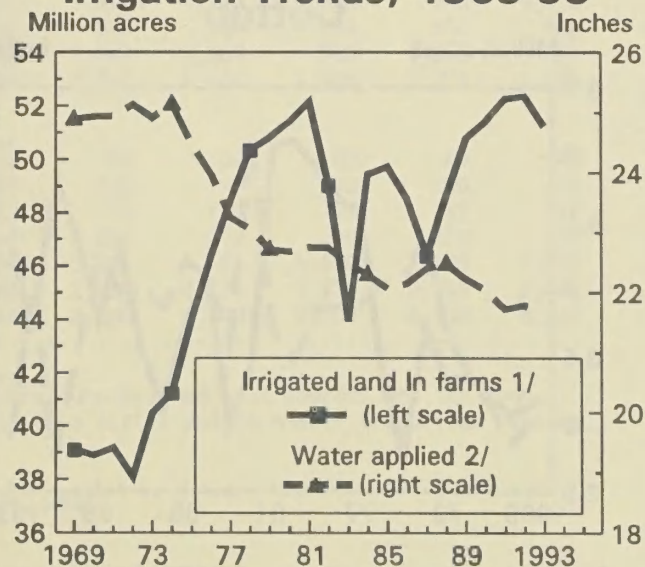
For additional discussion of irrigation trends, see Agricultural Resources; Cropland, Water, and Conservation Situation and Outlook, 1988-93 issues.

Contact: William A. Quinby, RTD (202) 219-0422.

About RTD UPDATES

RTD UPDATES is a semimonthly series featuring data relating to agricultural resources, the environment, food safety, and technology. These **UPDATES** report recent data from surveys of farm operators and others knowledgeable about changing agricultural resource conditions with only minimal interpretation or analysis. Please contact the individual listed at the end of the text for additional information about the data in this **UPDATE**. If you would like to be added to the mailing list or have other questions about **RTD UPDATES**, contact Richard Magleby, (202) 219-0436.

Irrigation Trends, 1969-93

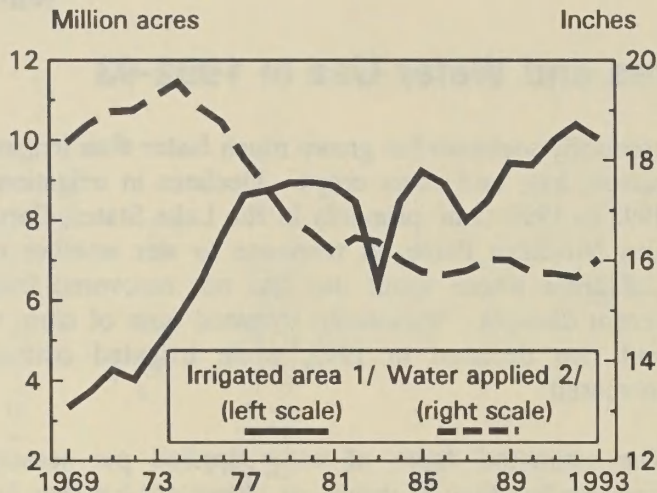


1/ Based on Census and annual USDA data.

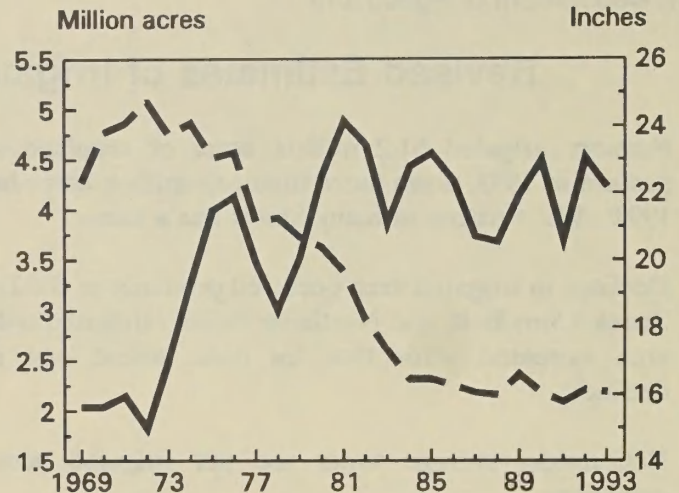
2/ Based on FRIS and changes in State/crop area.

Irrigation Trends, Selected Crops, 1969-93

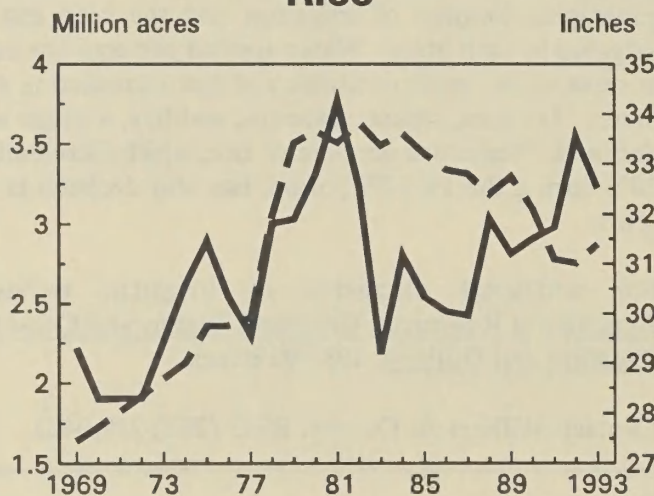
Corn



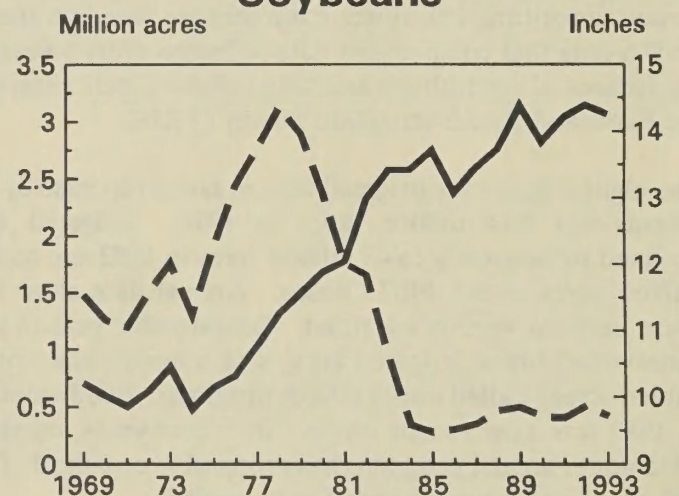
Wheat



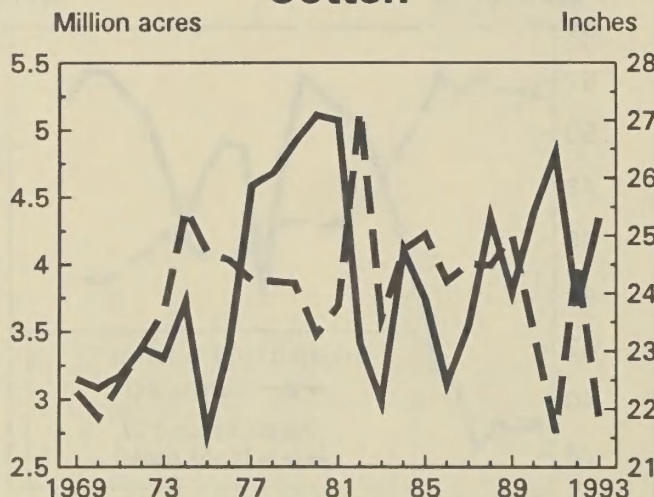
Rice



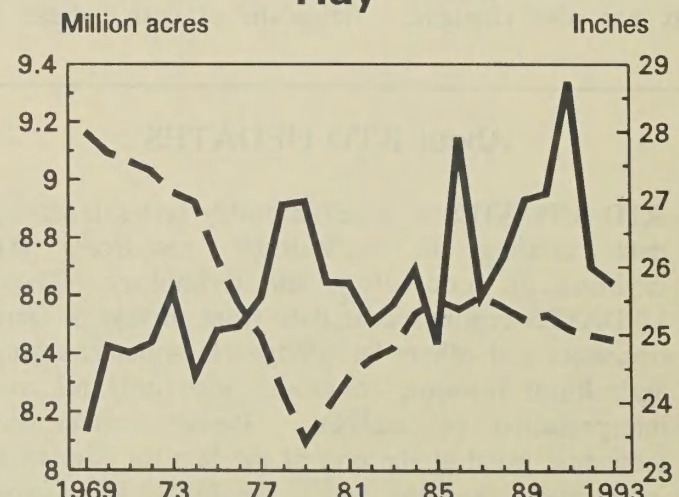
Soybeans



Cotton



Hay



1/ Based on Census and annual NASS data. 2/ Based on FRIS and annual changes in State/crop area. 1989-93 values assume 1988 FRIS State/crop water use per acre.

Source: Resources and Technology Division, Economic Research Service, USDA

Table 1--Irrigated area of land in farms and selected crops, 1969-93, by region

Region	1969 /1	1974 /1	1978 /1	1982 /1	1987 /1	1989 /2	1990 /2	1991 /2	1992 /2	1993 /2
Thousand acres										
Irrigated land in farms:										
Atlantic Regions 3/	1,800	2,000	2,900	2,700	3,000	3,200	3,400	3,300	3,400	3,400
North Central 4/	500	600	1,400	1,700	2,000	2,300	2,200	2,500	2,600	2,300
Northern Plains	4,600	6,200	8,800	9,300	8,700	9,700	9,800	10,300	10,300	10,100
Delta States	1,900	1,800	2,700	3,100	3,700	4,200	4,600	5,000	5,400	5,300
Southern Plains	7,400	7,100	7,500	6,100	4,700	5,200	5,400	5,700	5,500	5,400
Mountain States	12,800	12,700	14,800	14,100	13,300	14,500	14,600	14,500	14,400	14,400
Pacific Coast	10,000	10,600	12,000	11,900	10,800	11,500	11,200	10,800	10,600	10,200
United States 5/	39,100	41,200	50,400	49,000	46,400	50,800	51,400	52,300	52,300	51,200
Corn for grain:										
Atlantic Regions 3/	40	70	260	320	290	270	300	290	360	310
North Central 4/	140	170	650	730	830	1,000	1,000	1,110	1,200	950
Northern Plains	2,400	3,900	5,600	5,300	5,200	6,000	6,100	6,500	6,700	6,500
Delta States	10	-	10	10	50	40	50	70	90	90
Southern Plains	240	590	930	650	560	780	740	810	920	980
Mountain States	370	630	910	950	810	1,130	970	1,010	950	1,030
Pacific Coast	180	220	360	470	260	250	210	190	210	220
United States 5/	3,300	5,600	8,700	8,500	8,000	9,400	9,400	10,000	10,400	10,000
Wheat:										
Atlantic Regions 3/	10	10	10	80	50	80	70	60	50	50
North Central 4/	10	10	20	40	50	110	100	100	100	100
Northern Plains	310	440	530	870	790	770	870	790	810	820
Delta States	-	-	-	30	40	60	80	60	50	60
Southern Plains	800	1,010	760	1,060	800	600	890	680	930	780
Mountain States	550	1,000	910	1,340	1,200	1,470	1,480	1,300	1,640	1,550
Pacific Coast	360	810	770	1,240	800	1,050	1,000	720	940	860
United States 5/	2,000	3,300	3,000	4,600	3,700	4,200	4,500	3,700	4,500	4,200
Rice:										
North Central 4/	-	10	20	70	70	80	60	90	120	100
Delta States	1,220	1,510	1,890	2,080	1,650	1,910	2,050	2,150	2,610	2,360
Southern Plains	600	600	600	520	300	370	370	370	400	330
Pacific Coast	390	500	480	570	400	460	420	350	420	430
United States 5/	2,200	2,600	3,000	3,200	2,400	2,800	2,900	3,000	3,500	3,200
Soybeans:										
Atlantic Regions 3/	10	30	90	210	110	140	120	100	110	100
North Central 4/	80	80	200	330	370	390	340	420	430	410
Northern Plains	60	110	220	620	700	890	820	870	820	820
Delta States	380	160	590	830	1,350	1,480	1,480	1,580	1,500	1,640
Southern Plains	170	90	190	330	60	230	50	50	280	90
United States 5/	700	500	1,300	2,300	2,600	3,100	2,800	3,000	3,100	3,100
Cotton:										
Atlantic Regions 3/	10	-	-	20	90	110	140	190	200	240
Delta States	210	120	130	190	500	640	850	1,030	1,050	1,080
Southern Plains	1,810	1,880	2,330	1,290	1,380	1,390	1,730	2,020	840	1,510
Mountain States	430	550	690	600	460	580	580	550	500	480
Pacific Coast	660	1,150	1,520	1,310	1,080	1,040	1,060	980	1,050	980
United States 5/	3,100	3,700	4,700	3,400	3,500	3,800	4,400	4,800	3,700	4,300
Hay:										
Atlantic Regions 3/	20	20	40	50	60	60	60	60	60	60
North Central 4/	10	10	60	60	90	100	90	90	90	90
Northern Plains	430	540	760	720	670	730	730	790	790	750
Southern Plains	280	340	350	260	240	260	240	260	270	230
Mountain States	5,200	5,200	5,400	5,300	5,200	5,300	5,400	5,600	5,300	5,400
Pacific Coast	2,220	2,240	2,250	2,150	2,300	2,460	2,370	2,470	2,140	2,060
United States 5/	8,100	8,300	8,900	8,500	8,600	8,900	9,000	9,300	8,700	8,600

- indicates none or fewer than 5000 acres.

1/ Census of Agriculture. 2/ Revised estimates constructed from several unpublished USDA sources and the Census.

3/ Northeast, Appalachian, and Southeast farm production regions. 4/ Lake States and Corn Belt production regions.

5/ Includes Alaska and Hawaii.

Source: Resources and Technology Division, Economic Research Service, USDA

Table 2--Estimated average depth of irrigation water applied per season, 1969-93, by region and crop

Item	1969 1/	1974 /1	1979 /2	1984 /2	1988 /2	1989 /3	1990 /3	1991 /3	1992 /3	1993 /3
Inches										
Region:										
Atlantic Regions 4/	8.2	11.4	15.2	16.5	15.2	15.0	14.9	14.7	14.7	14.7
North Central 5/	6.8	7.9	9.5	9.3	10.3	10.1	10.1	10.1	10.3	6/
Northern Plains	16.5	17.5	15.6	13.7	14.3	14.2	14.3	14.3	14.4	6/
Delta States	15.5	17.9	25.9	17.7	17.8	17.2	17.2	17.1	17.8	17.3
Southern Plains	16.9	18.0	17.2	16.7	17.2	17.3	16.9	16.8	17.6	17.2
Mountain States	29.8	28.3	23.9	24.5	24.6	24.5	24.5	24.5	24.4	24.4
Pacific Coast	32.9	34.7	31.9	33.7	34.4	33.8	33.9	33.8	34.0	33.9
United States 7/	24.9	25.1	22.7	22.3	22.5	22.2	22.0	21.7	21.8	21.7
Crop:										
Corn for grain	18.4	19.5	16.8	16.0	16.0	16.0	15.8	15.7	15.7	6/
Wheat	22.3	24.1	20.7	16.5	16.0	16.6	16.0	15.8	16.1	16.1
Rice	27.5	29.0	33.4	33.6	32.4	32.7	32.1	31.1	31.0	31.4
Soybeans	11.5	11.2	14.0	9.6	9.8	9.8	9.7	9.7	9.9	6/
Cotton	22.3	25.5	24.2	24.8	24.5	25.0	23.3	21.6	24.6	21.9
Hay	28.0	27.0	23.4	25.3	25.4	25.2	25.3	25.1	25.0	24.9

1/ Census of Agriculture. 2/ Estimates constructed by State, by crop from Farm and Ranch Irrigation Surveys and ERS estimates of irrigated area. 3/ Aggregated from FRIS State/crop application rates using ERS estimates of irrigated area. Annual variation in water use due to weather is not estimated. 4/ Northeast, Appalachian, and Southeast production regions. 5/ Lake States and Corn Belt farm production regions. 6/ Estimated values based on 1988 rates are not appropriate due to the unusually wet 1993 crop year in North Central and Northern Plains regions. 7/ Includes Alaska and Hawaii.

Source: Resources and Technology Division, Economic Research Service, USDA. Previously published in part in Agricultural Resources: Cropland, Water, and Conservation Situation and Outlook Report, AR-30, May 1993.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

RTD UPDATES

Economic Research Service
U.S. Department of Agriculture
1301 New York Avenue, N.W., Room 524
Washington, DC 20005-4788

FIRST-CLASS MAIL
POSTAGE AND FEES PAID
U.S. Dept of Agriculture
Permit No. G-145